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Note

Records of the host plants and clutch sizes of *Acraea* butterflies (Lepidoptera: Nymphalidae)

Introduction

The study of butterfly-host plant relationships has been central to our understanding of evolution since Ehrlich and Raven's (1964) seminal paper on coevolution. The advent of molecular phylogenetics has recently permitted many of Ehrlich and Raven's original hypotheses to be rigorously tested (Janz & Nylin 1998). However, incomplete host plant records and the difficulty of judging the veracity of many reported host associations have hampered all these investigations.

The genus *Acraea* (Lepidoptera: Nymphalidae) is a potentially interesting group in which to investigate host-plant relationships for two reasons. First, the genus very speciose, containing over 240 species, and therefore provides many potential data points. Second, these species feed on a diverse range of hosts covering at least 24 different plant families (Ackery et al. 1995). In this paper we both confirm existing host records reviewed by (Ackery et al. 1995) and report new ones.

Methods

Egg batches or larvae were collected from Mabira forest and Kampala, both of which are in southern Uganda. Larvae were initially reared in petri dishes and then transferred to two litre jars. Approximately 30 larvae were reared together and each morning the jars were cleaned and the larvae fed fresh shoots. Compared to other butterfly species, *Acraea* caterpillars were not particularly susceptible to disease.

Adults are easily mated in small hanging cages (30-90 cm diameter) and will lay a batch of eggs the subsequent day if they are placed in a jar containing the food plant in the dappled shade.

Results

The host plant records are given in Table 1. The host plant of *A. vivianna* was previously unknown. We have also recorded a new host family for *A. encedon* and a new host genus for *A. quirinalis*. In addition, two always species were reared on British plants, although they had higher mortality than on their natural hosts. *Acraea eponina* was reared on *Tilia cordata* Mill. (Tiliaceae; small leaved lime) and *A. encedon* on *Urtica dioica* Linnaeus (Urticaceae; stinging nettles).

A. vivianna and *A. eponina* both feed on *Triumfetta rhomboidea*. However, these butterflies occur in very different habitats, nine groups of eggs or catterpillars collected from forest margins and clearings were all *A. vivianna* while 98% (n=99) of those from open country were *A. eponina*. The early stages of *A. vivianna* have not previously been recorded, the eggs, larvae and pupae were, on casual examination, indistinguishable those of *A. eponina*.

A. encedon was recorded on *Desmodium salicifolium*, the host plant of the closely related butterfly *A. encedana*. The eggs and larvae of *A. encedana* were always much commoner on this plant than those of *A. encedon*, even when adults of the later species appeared to be the most abundant.

A. acerata is a major crop pest of sweet potatoes (*Ipomoea batatas*), a staple food in Uganda. Crop damage was found to be especially severe in dryer places, where the caterpillars may virtually defoliate entire gardens.

Discussion

These results suggest that our knowledge of the host associations of *Acraea* butterflies is far from complete. Five of these species of caterpillar were collected without knowledge of the identity of either the plant or the butterfly. One of these five records

proved to be new host families and a second was a new genus. This is all the more remarkable given that this sample is strongly biased towards the commoner species of *Acraea*.

One record of particular interest is that *A. encedon* feeds on both the legume *Desmodium salicifolium* and the monocotyledon *Commelina benghalensis*, and in the lab it would also feed on the stinging nettle *Urtica urens*. This butterfly is closely related to three less common species (Pierre 1981), each of which feeds on one of these host genera; *A. encedana* feeds on *Desmodium salicifolium*, *A. encoda* Pierre 1981 on *Commelina* and *A. necoda* Hewitson 1861 on *Urtica* (and some other plants).

Literature Cited

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Table 1. Host plant records, * marks records which are either a new host genus or a new family (i.e. records not included in (Ackery, et al. 1995). The clutch sizes given are those of egg batches collected in the wild, with the number of clutches in brackets.

Butterfly	Host-plant Species	Family	Mean clutch size	Description of how eggs are laid
A. acerata Hewitson 1874	*Ipomoea batatus* Linnaeus	Concolvulaceae	165 (n=20)	Single layer, touching
A.bonasai Sharpe 1890	*Triumfetta macrophilla* Schum	Tiliaceae	198 (n=3)	Single layer, spaced out
A. ancedana Pierre 1976	*Desmodium salicifolium* Poir	Fabaceae	106 (n=4)	2-3 layers, touching
A. ancedon Linnaeus 1758	**Desmodium salicifolium* Poir	*Fabaceae		Single layer, touching
	Commelina benghalensis Linnaeus			
A. eponina Cramer 1780	*Triumfetta rhomboidea* Jacq.	Tiliaceae	122 (n=43)	Single layer, spaced out
A. quirinalis Grose-Smith 1900	**Laportea ovalifolia* Chew	Urticaceae	51 (n=13)	Single layer, spaced out
A. vivianna Staudinger 1896	* *Triumfetta rhomboidea* Jacq.	*Tiliaceae	162 (n=3)	Single layer, spaced out
A. zetes Linnaeus 1758	*Barteria acuminata* spp. *fisculosa* Baker	Passifloraceae		

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